EXPLANATION OF SIGNIFICANT DIFFERENCES

Envirochem Site
Zionsville, Indiana

September 2006

Prepared by:

United States Environmental Protection Agency
Region 5
Chicago, Illinois

EXPLANATION OF SIGNIFICANT DIFFERENCES

ENVIROCHEM SUPERFUND SITE
ZIONSVILLE, INDIANA

I. Introduction

The Envirochem Superfund Site (also known as the "Environmental Conservation and Chemical Corporation", or "ECC", referred to here as the "Site") is located in a primarily rural area of Boone County, Indiana, approximately 5 miles north of Zionsville and ten miles northwest of Indianapolis. Please see the attached Figure 1 depicting the site location. The Site, which occupies approximately 6.5 acres of land, was placed on the National Priorities List ("NPL") for site cleanup in September 1983.

The U.S. Environmental Protection Agency ("U.S. EPA") as the lead agency and the Indiana Department of Environmental Management ("IDEM") as the support agency have jointly overseen cleanup activities at the Site under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended ("CERCLA"), 42 U.S.C. §9601, et seq. On September 25, 1987, U.S. EPA issued a Record of Decision ("ROD") (available online at http://www.epa.gov/superfund/sites/rods/fulltext/r0587049.pdf) selecting a combined containment remedy for the Site and the Northside Sanitary Landfill site. Subsequent studies led U.S. EPA to issue a ROD amendment on June 7, 1991 (available online at http://www.epa.gov/superfund/sites/rods/fulltext/a0591161.pdf) to provide for separate, complementary remedies for the sites. U.S. EPA and IDEM entered into a Consent Decree with certain potentially responsible parties ("PRPs") who agreed to perform the final remedy for the Site. That Consent Decree was approved by the U.S. District Court for the Southern District of Indiana on September 10, 1991, and modified on May 7, 1998, June 25, 1999, and February 2, 2006. The Consent Decree requires those PRPs to implement the remedy selected by U.S. EPA (with IDEM's concurrence) in a June 7, 1991, ROD Amendment, as subsequently modified by a July 14, 1997 Explanation of Significant Differences ("ESD"). That Consent Decree and Revised Exhibit A, which is the principal technical appendix to the Consent Decree will be modified, to the extent necessary, to reflect the remedy changes described in this ESD.

The remedy provided for installing and operating a soil vapor extraction ("SVE") system to extract and treat volatile organic compounds ("VOCs") to achieve the cleanup levels for the Site set forth in Revised Exhibit A. Under the Consent Decree, the PRPs had up to five years to achieve and demonstrate compliance with the specified cleanup criteria using the SVE system. If the cleanup criteria were not satisfied within the five-year period, specific Additional Work was to be implemented to collect and dispose of VOC-contaminated groundwater by use of a groundwater collection trench at the Site perimeter. The Additional Work was intended to prevent contaminated groundwater from reaching the unnamed ditch near the east boundary of the Site or from reaching Finley Creek.

The PRPs began construction of the remedial action in December 1997 and operation of the SVE system on November 25, 1998. In its March 2003 Five-Year Review, U.S. EPA documented that

the SVE system did not meet the cleanup criteria. The PRPs proposed to modify and augment the Additional Work by using SVE trenches to capture and treat contamination near the unnamed ditch, adding a barrier wall to provide further containment, and, when the SVE system is not in operation, routing any groundwater that passed the barrier wall through a permeable reactive gate system ("PRGS") to provide treatment of any residual contamination. U.S. EPA and IDEM negotiated a Scope of Work outlining the details of the proposed revisions to the Additional Work portion of the Site remedy. This Scope of Work (Attachment Z-1) would be implemented and would become enforceable through an agreed amendment to the Consent Decree.

Section 117(c) of CERCLA and Section 300.435(c)(2)(i) of the National Oil and Hazardous Substances Contingency Plan establish procedures for explaining, documenting, and informing the public of significant changes to the remedy that occur after the ROD is signed. An ESD is required when the remedial action to be taken differs significantly from the remedy selected in the ROD but does not fundamentally alter that remedy with respect to scope, performance or cost. In this case the potential cost savings are significant and an important part of the decision to modify the remedy, however, the changes to the Additional work portion of the remedy are not considered fundamental because the remedy components still consist of groundwater containment and treatment.

Pursuant to the NCP at 300.825(a)(2), this ESD and supporting documentation shall become part of the administrative record file which is available for viewing at the Zionsville Town Hall (110 South 4th Street) and at the U.S. EPA regional offices in Chicago, Illinois (77 W. Jackson Blvd. 7th floor), during normal business hours. U.S. EPA will also publish a public notice of this ESD in the Zionsville Times-Sentinel, establishing a 30 day public comment period on the ESD. Upon the close of the public comment period, U.S. EPA will prepare a summary of the comments received and a response to those comments. If U.S. EPA determines it is appropriate, U.S. EPA may withdraw or modify this ESD based on public comments.

If U.S. EPA decides (in consultation with IDEM) to proceed with the remedy provided for in this ESD, the Agencies and the PRPs will seek to amend the Consent Decree to substitute the revised Additional Work provisions outlined in this ESD and in Exhibit Z-1 for the Additional Work provisions of Revised Exhibit A.

II. Site History, Contamination, and Selected Remedy

Envirochem began operations in 1977 and was engaged in the recovery, reclamation, and brokering of primary solvents, oils and other wastes received from industrial clients. Waste products were received in drums and bulk tankers and prepared for subsequent reclamation or disposal.

Accumulation of contaminated storm water on-site, poor management of the drum inventory, and several spills caused State and U.S. EPA investigations of Envirochem. The State pursued

Envirochem for violations of the Environmental Management Act, the Air Pollution Control Law, and the Stream Pollution Control Law, resulting in a July 1981, Consent Decree approved by the Boone County Circuit Court. That Court imposed a civil penalty against Envirochem and placed Envirochem into receivership. In May 1982, Envirochem was ordered by the court to close and environmentally secure the Site for failure to reduce hazardous waste inventories. By August 1982, Envirochem was found to be insolvent.

U.S. EPA proposed the Envirochem Site for the NPL in December 1982 and the Site was placed on the list in September 1983. A Remedial Investigation ("RI") was conducted in 1983 and 1984 to determine the nature and extent of contamination in soil, groundwater, surface water and sediments on and around the Envirochem Site. A Feasibility Study ("FS") was completed in 1986, which evaluated several alternatives for cleaning-up the Envirochem Site and the neighboring Northside Landfill Site, which had also been placed on the NPL.

In 1983, releases of contaminants were documented at the site including the discharge of contaminants from the site to the unnamed ditch. In response, surface contaminants were removed from the Envirochem Site in an operation extending from March 1983 through 1984. These cleanup efforts were initiated by U.S. EPA and completed by a group of PRPs, overseen by U.S. EPA and IDEM, pursuant to a Consent Decree entered on November 9, 1983. Actions included removal and treatment or disposal of cooling pond waters, approximately 30,000 drums of waste, 220,000 gallons of hazardous waste from tanks, 5,650 cubic yards of contaminated soil and cooling pond sludge.

In March 1985, contaminated water was discovered ponded on the concrete pad at the southern end of the Envirochem Site. There were reports of the water discharging from the site and threatening the Eagle Creek reservoir. During the resulting emergency action, U.S. EPA constructed a sump at the southeast corner of the Site, and removed and disposed of 41,000 gallons of contaminated water containing high levels of VOCs. Potential impacts to the Eagle Creek reservoir were prevented through these and other actions.

Further information regarding the history of the site and its contaminants can be found in the Administrative Record for the site.

Record of Decision

A ROD was issued by U.S. EPA on September 25, 1987, selecting a combined remedy for the Envirochem Site and the neighboring Northside Sanitary Landfill Site. That ROD provided for an impermeable cap over the contaminated areas and a groundwater collection and treatment system.

Based on a treatability study performed by the PRPs, U.S. EPA and IDEM later determined that it would be feasible and preferable to actively treat the contaminant source at the Envirochem Site with SVE, rather than simply collecting and treating groundwater at the periphery of the Site to

contain these contaminants (as provided for in the 1987 ROD). U.S. EPA therefore issued Amended RODs in June 1991, establishing separate, complementary remedial approaches for the Envirochem and Northside Sites.

As amended, the ROD for Envirochem Site included:

- Access Restrictions: Implementation of restrictions to control use of the Site, thereby protecting against direct contact with contaminated soils and groundwater.

- SVE: Construction of an SVE system to remove and destroy volatile organic compounds and selected base neutral/acid organics from the soils through a series of injection and extraction trenches. The goal of the soil vapor extraction system was to clean the contamination source areas to cleanup levels that would assure long-term protection of groundwater and surface water.

- RCRA Compliant Cap and Surface Controls: Construction of a multi-layered cap over the entire Site. The cap would comply with Resource Conservation and Recovery Act ("RCRA") performance-based standards. (The presence of the cap would also improve the efficiency of the soil vapor extraction system by reducing the amount of air and vapor that could escape from that system.) Surface controls included demolition and disposal of deteriorated on-Site buildings.

- Contingent Groundwater Treatment: In the event the soil vapor extraction system did not achieve required cleanup standards in on site soils, surface water and subsurface water within a five year operation period, a perimeter groundwater collection trench would be constructed near the south and east boundaries of the Site to collect contaminated groundwater. Collected groundwater would be treated to meet effluent standards before discharge into Finley Creek, or being sent to a local POTW. Groundwater collection and treatment would continue until cleanup standards were met.

U.S. EPA and IDEM entered into a Consent Decree with certain PRPs under which those PRPs agreed to perform (under U.S. EPA and IDEM supervision) the final remedy for the Site described in the Amended ROD as set forth in more detail in Exhibit A to the Consent Decree. That Consent Decree was entered September 10, 1991.

To implement the Consent Decree the PRPs have, under U.S. EPA and IDEM supervision: (1) conducted a Supplemental Investigation in January 1993, to collect groundwater data needed to design dewatering and treatment facilities associated with the SVE system; (2) obtained the necessary access agreements in July 1993, with the site owners to permit cleanup of contaminated areas and support activities on adjacent property; (3) completed site preparation work in the Fall of 1993 (with final supplemental work in the Spring of 1994), including an upgrade of site fencing, removal of site structures and debris, decontamination and disposal of tanks, construction

of pads for future decontamination and storage activities, site grading and construction of drainage channels; (4) from September, 1994, through January 22, 1996, secured, inventoried, analyzed and removed drums of contaminated material that had accumulated on-site during previous investigations and response activities; and (5) prepared a remedial design that was approved by U.S. EPA on November 18, 1997.

During the course of these activities, the PRPs encountered several difficulties. Solutions to these difficulties have been developed jointly by the PRPs, U.S. EPA and IDEM. These solutions affected the remedy and U.S. EPA (in consultation with IDEM) made four significant changes to clarify and improve the remedy as documented in the July 14, 1997 Explanation of Significant Differences.

Those changes were: (1) to remove and crush a concrete pad at the southern end of the Site, excavate soils under the pad to a depth of 9 feet, consolidate those materials in the northern portion of the Site where SVE would take place and demonstrate that the excavation met RCRA clean closure standards or place a RCRA-complaint cap over the excavated area or areas where residual contamination both remained above RCRA criteria and could not be safely removed; (2) to revise the cleanup standards for certain constituents and add standards for additional constituents; (3) to change certain technical details of the RCRA cover installation; and (4) to expand the area in which SVE would be performed.

Subsequent Events

As required by the July 14, 1997 ESD, soils in the southern portion of the Site including soils beneath the concrete pad were generally excavated to a depth of 9 feet. (This is the minimum depth to which SVE was originally expected to be effective.) Sheet pilings were used in the eastern portion of this area to reduce the amount of water that would seep into the excavated area. When the 9 foot depth was reached, any remaining visible contamination was also excavated where possible, and any contamination of concern identified through field screening was also excavated. Excavation was limited by concerns about sidewall stability and the need to avoid an underlying zone of highly permeable sand. Most of the water accumulated in the excavation area was collected, characterized, treated to meet discharge standards and appropriately disposed of through discharge to an on-site surface water body. Confirmatory soil samples were collected and the excavation was backfilled with clean soil from an off-site borrow source. The concrete pad overlying this area was crushed and excavated with the underlying soil. The excavated soils and crushed concrete were moved to the northern area of the Site and placed under the surface cover, where SVE was performed on the soil and crushed concrete. An impermeable cap which complies with RCRA Subtitle C standards was to be placed over the excavated area that did not achieve the equivalent of a clean closure under RCRA. This cap was not constructed while the PRPs discussed a number of RCRA closure issues with IDEM.

As reflected in the 1999 Consent Decree Amendment, the final cap for the northern portion of the

site consisted of a 60-mil HDPE synthetic liner system, covered by eighteen inches of select materials and six inches of top soil. Thus, a total of twenty-four inches of compacted materials was placed on top of the synthetic liner. The final cover also facilitated the proper operation of the SVE system and was functionally the same as the cover described in the Amended ROD with one exception. This final cover was not extended over the excavated area on the southern end of the Site as closure of the area was being pursued.

III. Basis and Description of the Explanation of Significant Differences

The SVE system was operated from November 1998 until early 2001 when it was determined that it could not meet cleanup standards. The SVE treatment system is currently shutdown and the remedial action at the site is not fully protective. Specifically, the remedial actions at the site have failed to meet cleanup standards, presenting a threat that ongoing releases of contaminated groundwater could reach nearby surface water , i.e., the unnamed ditch, which feeds into Finley Creek. Water moves slowly in the till and monitoring results from unnamed ditch have not thus far indicated any significant contamination. However, Additional Work as contemplated in the Consent Decree is necessary to ensure protectiveness. U.S. EPA and IDEM have negotiated the details of revisions to improve the Additional Work from that presently provided for in Revised Exhibit A to the Consent Decree. The substance of the agreement resulting from these negotiations is documented in proposed Attachment Z-1 to the Consent Decree for the site.

U.S. EPA (in consultation with IDEM) is proposing a significant change to the Envirochem ROD as amended in 1991and modified by the first ESD in 1997. The PRPs have agreed to this change. If approved, it will be included in an amendment to the 1991 Consent Decree that incorporates Attachment Z-1 into that Decree. Attachment Z-1 describes the revised Additional Work to be performed at the Site. For a summary and comparison of the remedy changes, please see the attached table.

The original Additional Work provisions in Revised Exhibit A required construction of a groundwater collection trench to capture and contain contaminated groundwater before it left the Site. The remedy will now be revised to install additional SVE trenches generally along the alignment previously required in Revised Exhibit A for the subsurface water interception trench (see the attached Figure 2). The new SVE trenches will be connected to the existing SVE system and will be operated using all of the basic operations of the existing SVE system. The purpose of these measures is to capture and treat through the SVE system the more mobile contaminants in the vicinity of the SVE trenches and moisture in sand seams that enter the SVE trenches. Because groundwater generally moves very slowly at the Site, it will be many years before the remaining contamination at the Site not captured by SVE reaches the trench interception system. The volume of groundwater reaching the trench is expected to be low and some attenuation of this contamination may occur prior to arrival at the trench. The trench system along with a barrier wall and a PRGS will be in place to passively collect and treat this contamination in the future. U.S. EPA in consultation with IDEM expect this will treat all remaining contaminants of concern

that may migrate to the trench and be protective of human health and the environment.

As discussed in the March 2003 Five Year Review of the Site (available online at http://www.epa.gov/superfund/sites/fiveyear/f03-05008.pdf), significant groundwater contamination was documented within the till unit with only minor contamination of a few wells screened in the underlying sand and gravel unit. Vapor intrusion is not expected to be an issue at the site considering that groundwater is flowing to the southeast toward the Northside Sanitary Landfill and residences are not located above the known extent of groundwater contamination.

Only a minor amount of dense non-aqueous phase liquid ("DNAPL") was identified at the Site in till well T-2. When present in significant quantity, DNAPL may act as a continuing source of groundwater contamination. Therefore, DNAPL is considered to be a principal threat waste. At this Site, however, DNAPL is not known to be a significant problem. Past releases of contaminants to unnamed ditch were addressed by previous Agency removal actions. Groundwater discharge to unnamed ditch remains a potential concern to be addressed by this ESD. Given that DNAPL is not a significant problem, the groundwater flow through the till is slow, and other site characteristics discussed previously, EPA expects that this response action will effectively protect the unnamed ditch.

The work required under Attachment Z-1 enhances and replaces the water interception trench originally contemplated as the Additional Work in Revised Exhibit A and all Attachment Z-1 work will be conducted under the Additional Work provisions of the Consent Decree, as amended.

After completion of construction, there will be several distinct phases for the operation of the modified Additional Work. The activities will be different for each period. The periods and the associated activities are as follows:

A. Active Phase: This is defined as the period of operation of the augmented SVE trench system.

B. Phase I Monitoring: This is defined as a one-year period beginning when the Soil Vapor Standards have been achieved in the augmented SVE trenches. At the completion of the Phase I Monitoring period, Phase II Long Term Monitoring will begin at the Site.

C. Phase II Long Term Monitoring: This is defined as the period following the completion of Phase I Monitoring.

The sequence of activities for implementing the modified Additional Work is presented below:

1. Installation of a thin barrier curtain wall along the east, south, and southwest sides of the Site adjacent to and near the outside edge of the trenches.

2. Implementation of a pump test to better predict water infiltration rates into the SVE perimeter trenches, including two segments in the vicinity of the former Southern Concrete Pad area.

3. Finalization of the SVE perimeter trench design will be based on the results of the pump test subject to approval by U.S. EPA in consultation with IDEM. In the event that the pump test results indicate that in the old Southern Concrete Pad area excessive water will enter one or two trench segments, i.e., a direct hydraulic connection causing a flow of water from the underlying sand and gravel aquifer into either or both of those two segments, it is anticipated that the impacted trench segment(s) will be replaced by SVE wells of varying depth in the same general area for the purposes of SVE operation. If SVE wells are utilized, upon completion of the SVE operational phase, one or two additional trenches, as needed, will be installed in the vicinity of the closed SVE wells at an elevation appropriate to capture subsurface till water in that area including water in sand and gravel lenses within the till. Piping will be installed in these trenches and connected to the other trench segments to convey the subsurface till water collected in them to the PRGS. Whether or not SVE wells are used, the final system will be capable of passively collecting (i.e., without pumping) the subsurface till water located upgradient of the barrier wall and routing it through the PRGS for treatment.

4. Installation of the perimeter trenches (and wells if needed) along the east, south, and southwest sides of the Site in accordance with the final design.

5. Collection and treatment of subsurface water in the till and extraction of soil vapors via the augmented SVE trench system until attainment of Soil Vapor Standards.

6. Monitoring of surface and subsurface water.

7. Control of the Site hydraulic gradient within the till unit and further assurance of protection of Unnamed Ditch from the discharge of contamination above Acceptable Stream Concentrations in Table Z-1-1 using a PRGS.

Finally, although it is not a significant change to the site remedy as previously modified, it is worth noting that a final cover will not be placed over the excavated former Southern Concrete Pad Area. The 1997 ESD contemplated that the cover would not be necessary to the extent that the excavation achieved the equivalent of a clean closure under RCRA. Given site-specific

characteristics, U.S. EPA in consultation with IDEM believe that the following remedial measures will provide an equivalent level of protectiveness compared to placing an engineered cover over the area: 1) the Attachment Z-1 Additional Work that will be performed; 2) the completed excavation to approximately 9 ft. in depth; and 3) the low permeability clay backfill placed in the excavation. Additionally, as contemplated by the Amended ROD, because the SVE system did not achieve the cleanup standards, the focus of the remedy has shifted to preventing migration of contamination off of the Site. The barrier wall and reactive gate provide a containment and treatment system, so that preventing infiltration of water through any residual contaminants in this area is no longer essential. Therefore the proposed modifications will not change the Remedial Action Objectives for the site.

The estimated cost of constructing the Exhibit Z-1 remedy is in the range of $2 million, and the cost of operation, maintenance and monitoring is expected to be in the range of $500,000. By comparison, the estimated cost of constructing the Revised Exhibit A remedy is in the range of $1 million, but that remedy would likely require perpetual water removal and treatment for decades. Assuming for cost purposes thirty years of water removal and treatment, that cost is estimated to be in the range of $5 million.

Institutional Controls

The 1987 ROD required that deed restrictions be placed on the Site to prevent future development of the land to protect against direct contact with contaminants or further migration of contaminants. The deed restrictions were further required to prohibit use of groundwater or installation of wells (except for monitoring wells) at the Site. The principal media of concern at the site are soils and groundwater. The 1991 ROD amendment and the 1997 ESD did not alter these requirements.

With respect to soils, contact with residual soil contamination is precluded by the cap in the northern and central parts of the site and by the nine feet of clean fill in the southern portion of the site. Therefore the principal institutional controls with respect to exposure to soil are use restrictions to preserve the cap in the northern and central parts of the site and to avoid excavation that approaches nine feet in the southern part of the site. With respect to groundwater, no significant contamination has been detected in the underlying sand and gravel layer, and discharge of the contaminated water in the till is expected to be of low volume and will either be contained or be treated by the reactive gate. Accordingly, the principal institutional control appropriate to groundwater is the preservation of the barrier wall and the reactive gate.

The access agreement for the remedy obtained by the PRPs from the owners in 1993, which was duly recorded and runs with the land, continues to preclude their constructing or placing any improvements on the Site unless and until the Court enters an order that the PRPs have no further obligations under the Consent Decree as to the Site. The Court would not do so without prior notice to U.S. EPA and an opportunity for it to be heard. Additionally, as part of the Attachment

Z-1 remedy, the PRPs have agreed to submit to U.S. EPA for its approval any proposed amendment to the existing access agreement that would effect the integrity of the cap in the northern or central parts of the Site, that would allow excavation in southern part of the Site, or that would pose a risk to the barrier wall or the reactive gate.

U.S. EPA recognizes that reuse of the surface of the property may be possible even though a groundwater remedy is ongoing, so long as the reuse is protective of human health and the environment and is both protective of the cap and of the long term groundwater remedy. U.S. EPA may modify the restrictions required by the 1987 ROD, as appropriate to allow for the redevelopment of the site while maintaining the protectiveness of the remedy. Any such changes in the restrictions would require a corresponding modification of the 1991 Consent Decree. At that time additional measures may be taken to enhance the Agency's ability to directly enforce the remaining use restrictions.

IV. Support Agency Comment

IDEM concurs with the modifications made by U.S. EPA in this ESD. A letter of concurrence from IDEM, is expected to be received by U.S. EPA during the public comment period.

V. Affirmation of Statutory Determinations

Considering the new information that has been developed and the changes that have been made to the selected remedy, U.S. EPA believes (and IDEM concurs) that the remedy as modified in this ESD remains protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to this remedial action, and is cost-effective. In addition, the revised remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this Site and satisfies the requirements of Section 121 of CERCLA 121.

In 2003, U.S. EPA, Region 5, conducted the first five-year review of the remedy implemented at the Envirochem site in Zionsville, Boone County, Indiana. Five-year reviews will be conducted in the future due to the fact that hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure. These five-year-reviews will include an evaluation of the effectiveness of the institutional controls.

VI. Public Participation Activities

In accordance with NCP Section 300.435(c)(2)(i), U.S. EPA published a public notice of this ESD in the Zionsville Times-Sentinel, informing interested persons that a copy of the ESD and supporting documentation was available at the Zionsville Town Hall (1100 W. Oak Street), the Hussey-Mayfield Memorial Public Library (250 N. Fifth St. in Zionsville, Indiana) and at the U.S. EPA regional offices in Chicago, Illinois (77 W. Jackson Blvd. 7th floor), during normal business

hours. That notice established a 30 day public comment period on the ESD beginning June 28, 2006 and ended July 27, 2006.

During the public comment period the following comments were received. Each comment is followed by U.S. EPA's responses in bold type.

Comment No. 1: Conclusions regarding DNAPL impacts

The ESD indicates that only a minor amount of DNAPL was identified at the site in monitoring point T-2 and that DNAPL is not a significant problem (3rd paragraph, Page 7). There are only five till wells within the remedial boundary of the site (including T-2A, the replacement well for T-2), and DNAPL has been detected in 20% of the till wells located within the site remedial boundary. Furthermore, there are no sand and gravel zone monitoring wells located in the immediate vicinity of the known DNAPL impacts to effectively assess potential deeper DNAPL impacts. It may be helpful to clarify the ESD at page 7 to reflect that additional investigation specifically designed to evaluate the extent of DNAPL impacts was not conducted at the site.

This comment implies that the characterization of the site in regard to DNAPL was inadequate. Given the extensive trenching, borings and other investigation completed at the site U.S. EPA disagrees with this comment. The sand and gravel zone is not contaminated at levels indicative of nearby DNAPL. DNAPL has generally not been identified other then what appear to be a few isolated sand lenses in the southeast corner of the site and the T-2 well. The "southern concrete pad area" was completely excavated down to about 8 to 12 ft. below grade. Additional excavation did not locate DNAPL as the SVE trenches were completed across the width of the site at the northern end. Other than the sand lenses in the southeast corner of the site and the T-2 well, DNAPL was not identified in these extensive excavations and other drilling investigations. The site has been adequately characterized and DNAPL is not a significant issue at the site. Therefore, U.S. EPA believes that no change to the ESD is necessary.

Comment No. 2: Augmentation of the Additional Work

The ESD refers to the proposed changes as an augmentation of the "Additional Work" throughout much of the document. However, page 2 of the remedial components table refers to operation of "the augmented SVE system." As the objectives for installing and operating these trenches are fundamentally different than the original SVE system (till water interception verses source area treatment) and the trenches will be installed under the Additional Work provisions of the ROD, it might be helpful to clarify in page 2 of the table a reference to the "operation of the SVE component of the augmented Additional Work.".

The purpose of the ESD is to document the difference between the Additional Work originally contemplated in the Consent Decree and the modified Additional Work now being proposed. This comment instead appears to be comparing the Additional Work to original remedy, which is not the subject of the ESD. It is therefore not relevant to

characterize or compare the objectives of the original remedy for purposes of this ESD. While there is no need to address or adopt the particular premises of the comment, the specific suggested language provides a helpful clarification and U.S. EPA will add similar language to the table in the final ESD.

Comment No. 3: SVE Trench Depth

An additional difference not identified in the ESD concerns the allowable maximum depth of the SVE trenches. Under the 1997 Revised Exhibit A, the maximum allowable SVE trench depth was 10 feet below the original ground surface and the specified treatment zone was to a depth of 9 feet below the original ground surface. Under the new proposal, it appears as though the maximum depth of the SVE trenches will extend beyond 10 feet below the original ground surface and the treatment zone will extend deeper than 9 feet. It may be helpful to reflect on page 6 of the ESD this difference and that it allows deeper dewatering and treatment of the till water zone than the original Revised Exhibit A permitted.

This comment again compares the modified Additional Work in this ESD to the original remedy. Such a comparison is outside the scope of the ESD. Moreover, it is not clear that the factual premise of this comment is correct. Revised Exhibit A of the Consent Decree states on pages 6 and 7 that the SVE trenches "will be designed to be effective to a minimum depth of 9 ft." Therefore, U.S. EPA believes that no change to the ESD is necessary.

VII. Concurrence

for Richard C. Karl, Director
Superfund Division

9/13/06
Date

Envirochem Superfund Site

1) State

2) Boone County

3) Envirochem Site

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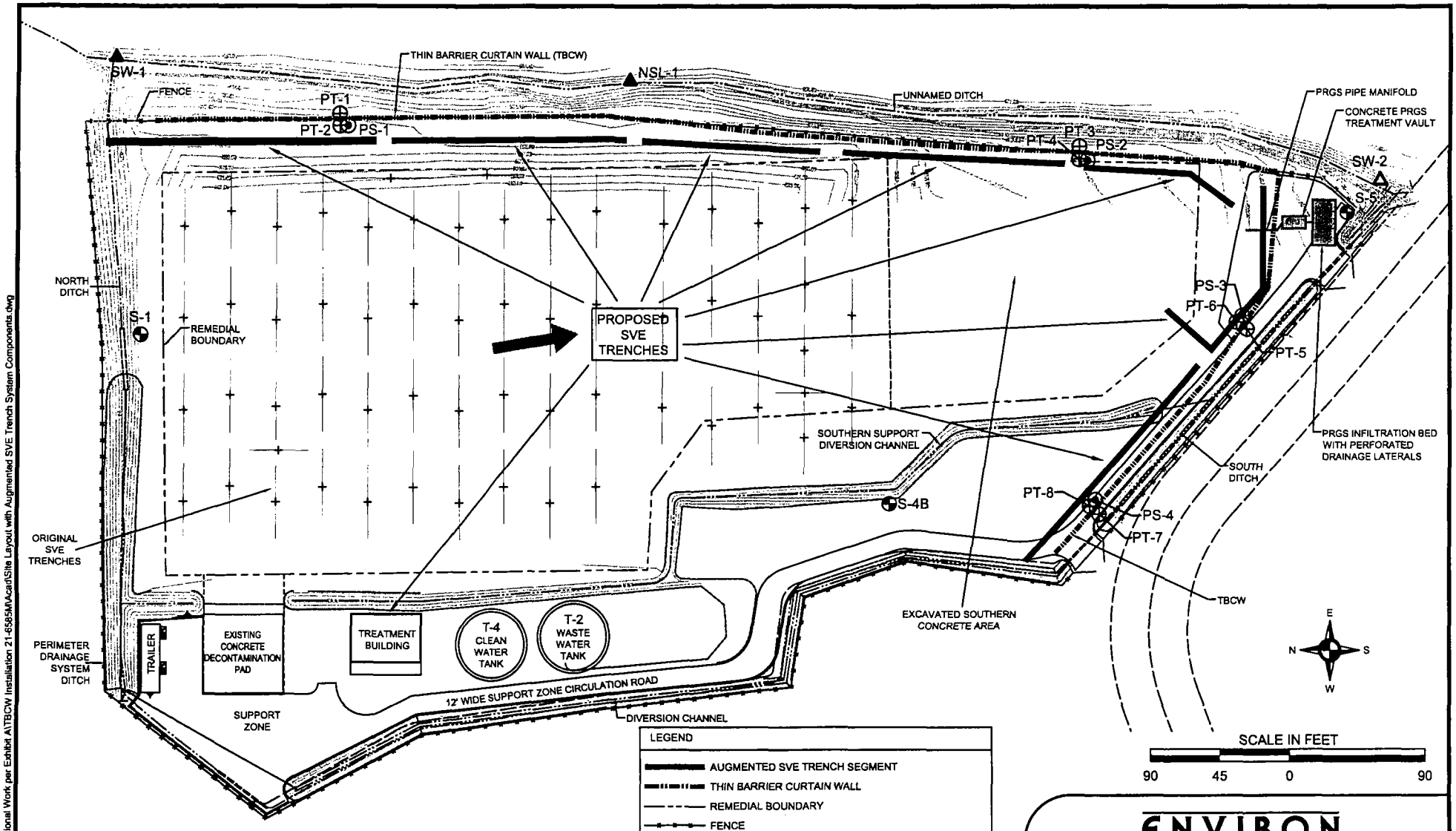
EPA Region 5 Superfund GEOS

Plot created by David Wilson U.S. EPA Regon 3/25/2003
B&W Image Date: 5/16/2000

Figure 1



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ENVIRON

SITE LAYOUT WITH AUGMENTED SVE TRENCH SYSTEM COMPONENTS

ENVIRO-CHEM CORPORATION SUPERFUND SITE
985 S. US. HIGHWAY 421
ZIONSVILLE, INDIANA

DATE:	CONTRACT NUMBER:		FIGURE
06/05/06	21-6585B		2
DRAFTER: APR	APPROVED:	REVISED:	

ECC Site Remedial Components Comparison

1987 ROD	ECC Site 1991 ROD Amendment	ECC Site 1997 ESD	ECC Site 2006 ESD
Northside Sanitary Landfill and ECC site combined remedy	Separate but compatible remedies for ECC site and Northside Sanitary Landfill	---	---
Leachate collection and onsite treatment (expect to continue in excess of 30 years)	N/A	---	---
Combined cover over both sites	N/A	---	---
Access restrictions			
	ECC Site Remedy:		
	Soil vapor extraction (SVE) using SVE trenches with potential to remediate the site in five years or less	SVE remedy is modified to allow use of SVE wells as well as SVE trenches and to provide that materials from southern part of site would be excavated and moved to the central and northern parts of the site for SVE treatment. The excavation in the southern portion of site is to be filled with clean fill. Area of site also expanded slightly on the western side.	SVE trenches will be used to augment the Additional Work described below.
	On site SVE compliance criteria established for subsurface water, surface water and soils. If on-site cleanup levels are achieved, supplemental off site and surface water sampling provided for.	Additional chemicals added to onsite SVE compliance criteria and several site cleanup criteria recalculated using site specific organic carbon fraction rather than literature values.	NA
	RCRA compliant cap over the site.	Composition of the RCRA cap on northern and central parts of the site modified, final cap to	RCRA cover determined not to be needed on the southern portion of the site.

		be extended over the southern area to the extent that area does not meet RCRA clean closure requirements.	
	ECC Additional Work:		
	Installation of a subsurface water collection trench on the eastern, southern and part of western sides of the site including HDPE liner[1] to contain contaminated groundwater.	No Change	Additional SVE trenches will be installed along the approximate alignment of the former subsurface water collection trench. After operation of the SVE system component of the modified Additional Work is completed (expected to be approximately 1-2 years including an active monitoring phase) any residual water in the trenches will be contained by a barrier wall (replacing the HDPE liner). Any water that is not contained will be discharged through an installed reactive gate where it will be treated.[2]
	Collection of subsurface water in the trench system (expected to continue in excess of 30 years) and on or off-site treatment of collected water.	No Change	Collection of subsurface water in the SVE system during operation of the system and on or off-site treatment of collected water. After operation of the SVE system, on-site treatment through the reactive gate (to be evaluated as part of five year review)

[1] The HDPE liner was subsequently upgraded to Impermix® thin barrier curtain wall (TBC) and installed in May 2006. The TBC in addition to providing direct protection to Unnamed Ditch will also assist in the operation of the SVE trenches proposed in the 2006 ESD.

[2] SVE wells may be used in lieu of two SVE trench segments in the southern portion of the site depending on the outcome of hydraulic testing in that area. If SVE wells are used, after their operation the trench segments will be completed and also connected to the reactive gate.

	Monitoring of offsite wells and surface water	No Change	Monitoring of discharge from the reactive gate added.
			Site may be evaluated for potential commercial or industrial (not residential) reuse after 2 to 3 years provided reuse is protective of the groundwater remedy and the environment.